

A REVIEW OF THE CRANE FLIES IN THE SUBGENUS  
*TIPULA* (*PAPUATIPULA*) (DIPTERA: TIPULIDAE),  
WITH DESCRIPTIONS OF FIVE NEW SPECIES

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ABSTRACT

The subgenus *Tipula* (*Papuatipula*) is reviewed. Twenty-three species are recognized with five species from Papua New Guinea being newly described: *Tipula* (*Papuatipula*) *insperata*, *Tipula* (*Papuatipula*) *koiari*, *Tipula* (*Papuatipula*) *nigritus*, *Tipula* (*Papuatipula*) *oneili*, and *Tipula* (*Papuatipula*) *wibleae*. A key is provided to identify all species for which types have been examined. Female brachyptery and gynandromorphy in *Tipula* (*Papuatipula*) *koiari*, n. sp., are discussed.

INTRODUCTION

The subgenus *Papuatipula* (Alexander, 1935) of the large and extensive genus *Tipula* (Linnaeus, 1758) contains a small group of species from New Guinea. This review was stimulated by the discovery of five new taxa collected during a recent field trip to Papua New Guinea. It is an effort to clarify the systematic limits of this subgenus, and to investigate its relationship to other subgenera within *Tipula*.

Species of *Papuatipula* are poorly represented in collections, and specimens other than type materials are lacking for comparative study. Many of the older types are in poor condition, having been improperly mounted or subsequently mishandled. Species of subgenus *Papuatipula* are the most frequently encountered and the most diverse species of *Tipula* in New Guinea. Many more species will undoubtedly be found when the fauna is better collected, therefore, a revision of the subgenus at this time would be premature. The following review is primarily a redefinition of the subgenus, a key and descriptions of five new species, and should provide a foundation for future systematic and biological studies.

TAXONOMIC HISTORY

The subgenus *Papuatipula* was first proposed by C. P. Alexander (1935:52), who described it as follows:

"... Antennae 13-segmented; flagellar segments with verticils that greatly exceed the segment in length. Tibial spurs long and conspicuous; formula 1-2-2. Wings with Rs unusually short but not transverse, ... squama naked ..."

The subgenus was described in *Tipula* and the five originally included species were *Tipula* (*Papuatipula*) *divergens* de Meijere, *T. (P.) leucosticta* Alexander, *T. (P.) meijereana* Alexander, *T. (P.) novaebritanniae* Alexander, and *T. (P.) omis-sinervis* (de Meijere). *T. (P.) novaebritanniae* was designated as the type species. Alexander subsequently described an additional thirteen species (Oosterbroek and Jonas, 1986): *T. (P.) artifex* Alexander, *T. (P.) consiliosa* Alexander, *T. (P.) gres-*

Submitted 11 November 1986.

*sittiana* Alexander, *T. (P.) lieftincki* Alexander, *T. (P.) melanotis* Alexander, *T. (P.) nokicola* Alexander, *T. (P.) obediens* Alexander, *T. (P.) pensilis* Alexander, *T. (P.) satirica* Alexander, *T. (P.) staryi* Alexander, *T. (P.) strictistyla* Alexander, *T. (P.) surcularia* Alexander, and *T. (P.) toxopeina* Alexander. He transferred two other species, *T. (P.) cyclopica* Alexander and *T. (P.) pedicioides* Alexander from the subgenus *Acutipula* (Alexander) to *Papuatipula* (Alexander, 1973). Twelve holotypes and four paratypes of the twenty described species have been examined and compared to the study materials consisting of 71 specimens in The Carnegie Museum of Natural History (CMNH) and 5 specimens from the Bernice P. Bishop Museum.

When first established, the subgenus was characterized by venation, naked squamae, and the male hypopygia. Some of these characters are no longer diagnostic for *Papuatipula* because of variation among the species that were subsequently transferred to the subgenus. Moreover, when the holotype of *T. novae-britanniae* was examined, the squamae were not naked but bore a cluster of eight setae, despite Alexander's original description. The present study has demonstrated that venational differences, such as the length of vein Rs compares to m-cu, vary among the species and are of little value in delimiting the group. The structures of the male hypopygium, on the other hand were found to be the most informative taxonomic features and have been used to characterize this subgenus. With the addition of the five new species described below and the removal of *T. nokicola* and *T. pedicioides*, 23 species of *Papuatipula* are recognized at this time.

## SYSTEMATICS

### Family Tipulidae

#### Subgenus *Papuatipula*

**Description.**—The terminology used in this section, in the following key to species, and in the species descriptions, follows Byers (1961) and McAlpine (1981).

**Head:** Rostrum well developed, 1.5 to twice length of rest of head, nasus distinct. Frons moderately broad with medial tubercle. Antenna 13-segmented, subequal to length of head; two short and three long verticillate setae arise from base of each flagellomere. Terminal segment of maxillary palp flagelliform, longer than four preceding segments together.

**Thorax:** Wing clear with dark brown stigma and paler brown quadrate area before middle of cell CuA, or striped with longitudinal brown and white pattern with a white band before cord and dark pigment narrowly present along veins CuA, m-cu, and r-m. Squama setose. Tibial spur formula 1-2-2. Male claws with two teeth; female claws simple or with single tooth.

**Abdomen:** Abdomen slender, in male slightly shorter than wings, in female usually longer.

**Hypopygium:** Tergite 9 separates from sternite 9; basistyle fused with sternite; sternite 8 unarmed. Tergite 9 notched medially bearing small spines. Outer dististyle lobed, cylindrical, pigmented apically. Inner dististyle variable.

**Ovipositor:** Tergite 9 short, not produced laterally. Cerci long and extreme slender, smooth-margined, fused to tergite 10; hypovalves shorter than cerci and fused basally. Valvulae fused at base, slightly sclerotized posteriorly.

**Diagnosis.**—The subgenus can be separated morphologically from other subgenera of *Tipula* by the following characters: squamae setose, tibial spur formula 1-2-2, male hypopygium with ninth tergite and sternite separated and ninth tergite notched medially, and the outer dististyle sclerotized. The last two characters appear to be apomorphic thus species of *Papuatipula* may form a monophyletic group.

Three other subgenera of *Tipula* are sympatric with *Papuatipula* in New Guinea (Alexander, 1961). They are *Acutipula* (Alexander), *Indotipula* (Edwards), and *Tipulodina* (Enderlein). Species of *Tipulodina* have long legs that are ringed with



snowy white on the femora, tibiae, or basitarsi. Species of *Indotipula* have naked squamae and clear, iridescent wings. The subgenus *Acutipula* was characterized primarily by having the ninth tergite and sternite fused laterally and by having unbranched weakly sclerotized outer dististyle. Species of *Papuatipula* bear a strong resemblance to those of *Acutipula*, but can be distinguished easily from the other subgenera.

*Tipula nokiicola* (Alexander, 1953) and *T. pedicioides* (Alexander, 1948) are excluded from *Papuatipula* due to several morphological characters. In *T. nokiicola*, the presence of a strongly sclerotized outer lobe at the base of the inner dististyle in the male and iridescent transparent wings suggest a relationship to sympatric *Indotipula* species. However, the presence of setae on the squamae is similar to the condition in *Papuatipula*. *T. pedicioides* was described in 1948 in the subgenus *Acutipula* and was transferred to *Papuatipula* by Alexander (1973). The relatively large, unbranched outer dististyle suggests an affiliation with *Acutipula*. More specimens and study are needed to assess the systematic position of both *T. pedicioides* and *T. nokiicola*.

*Included species.*—Characters found useful in segregating species of *Papuatipula* are as follows: (1) wing pattern; (2) shape of flagellomeres; (3) shape of the ninth tergal lobes; (4) degree of sclerotization of the outer dististyle; (5) shape of the inner dististyle; (6) length of the cerci relative to the hypovalves. The following key to species is based primarily on the most easily visible genitalic characters of males and includes only those species for which type specimens have been examined, therefore, omitting *T. divergens*, *T. leucosticta*, *T. lieftincki*, *T. meije-reana*, *T. omissinervis*, and *T. surcularia*.

#### KEY TO SPECIES OF *PAPUATIPULA*

1. Wings longitudinally striped with brown and white; dark pigment narrowly present along vein CuA ..... 2
1. Wings unmarked except for the stigmal darkening and a quadrate dark mark at middle of cell CuA ..... 15
2. Wings with dark pattern strongly contrasting, whitish crossband at cord extensive; white pattern covering about half of cells M<sub>1</sub>, 2nd M<sub>2</sub> and M<sub>3</sub> ..... 3
2. Wings with dark pattern diffuse, not strongly contrasting, no whitish crossband at cord; white pattern less extensive, only covering bases of cells M<sub>1</sub> and 2nd M<sub>2</sub> ..... 7
3. Size large, wing length over 30 mm ..... *T. wibleae*, new species
3. Size smaller, wing length under 25 mm ..... 4
4. Cell CuA<sub>1</sub> entirely dark ..... *T. koirai*, new species
4. Cell CuA<sub>1</sub> entirely clear or with more than apical half clear ..... 5
5. Proximal half of outer dististyle dilated ..... *T. toxopeina*
5. Outer dististyle simple, not dilated ..... 6
6. Ninth tergite of male shallowly emarginated ..... *T. gressittiana*
6. Ninth tergite of male broadly emarginated forming V-shaped notch ..... *T. staryi*
7. Ninth tergite of male with two medial lobes and two lateral lobes ..... 8
7. Ninth tergite of male without lateral lobes ..... 10
8. Medial lobes on ninth tergite of male separated by a deep U-shaped notch ..... *T. nigrinus*, new species
8. Medial lobes nearly approximate at base ..... 9
9. Outer dististyle strongly sclerotized with two large teeth on mesal margin ..... *T. insperata*, new species
9. Outer dististyle with one tooth on mesal margin ..... *T. artifex*
10. Medial lobes on ninth tergite of male separated by very narrow notch ..... 11
10. Medial lobes on ninth tergite of male separated by broad U-shaped notch ..... 14
11. Outer dististyle deep bifid ..... *T. satirica*
11. Outer dististyle simple ..... 12
12. Outer dististyle with two large apical teeth ..... *T. pensilis*

12. Outer dististyle with single dark point ..... 13
13. Inner dististyle with beak broadly compressed ..... *T. strictistyla*
13. Inner dististyle with beak long and slender ..... *T. consiliosa*
14. Outer dististyle long, straight, rod-shaped, with sharp apical spine ..... *T. melanotis*
14. Outer dististyle broad, compressed ..... *T. cyclopica*
15. Outer dististyle rod-shaped, apex bifurcate with dark serrate spur extending inward .....  
..... *T. oneili*, new species
15. Outer dististyle broad, compressed ..... 16
16. Outer dististyle bifurcate, one edge with a sharp spine, the other with a group of spinuloid  
setae ..... *T. obediens*
16. Outer dististyle simple, with one apical spine ..... *T. novaebritanniae*

***Tipula (Papuatiptula) insperata* Young, new species**  
(Fig. 1-3)

**Description.**—Body length: Male, 16 mm; female, 22 mm. Wing length: Male, 21 mm; female, 23 mm.

**Head:** Occiput and rostrum brown; palpi with first three segments yellow, terminal segment brown. Frontal tubercle with median longitudinal groove. Antenna with scape, pedicel and first flagellomere yellow; flagellomeres distinctly bicolored, dark brown basally, remainder yellow; all flagellomeres except last subequal in length; five setae in verticil arising from base of each flagellomere, longest about three times length of flagellomere.

**Thorax:** Pronotum reddish brown. Scutum brown with four light brown stripes, median stripes divided anteriorly by dark brown interspace. Scutum, scutellum and mediotergite brown, pollinose. Pleura yellowish brown, pollinose, with one narrow dark brown longitudinal stripe across cervical sclerite, proepisternum, upper anepisternum, and base of wing to katatergite. Legs with coxae and trochanters yellow; femora yellow with conspicuous subapical brown band; tibiae and basitarsi yellow with apices dark; remainder of tarsi brown. Wings tinged with brown; dark areas at stigma, distal side of anterior cord, postarcular region; a conspicuous dark brown quadrate spot before middle of cell CuA<sub>1</sub>, preceded and followed by whitish subhyaline areas; dark pigment narrowly bordering veins CuA and base of CuA<sub>1</sub>. Halteres brown.

**Abdomen:** Ground color yellowish brown. First segment gray, tergites 2 to 4 brown with gray lateral borders, basal rings glabrous, subbasal impressions conspicuous; tergites 5 to 7 dark brown. Sternite brownish yellow.

**Hypopygium:** External structures as in Fig. 1, 2. Tergite 8 much shorter than tergite 9. Tergite 9 terminating in two very dark lobes medially, separated by a small rectangular notch; margins of lobes with spines; outer lateral angle of tergite 9 produced into lower glabrous lobe. Outer dististyle dark brown, with dark apical point posteriorly and curved inwards bearing two large teeth on mesal margin before apex. Inner dististyle with beak slender; lower beak large, dark; outer basal lobe smaller, rounded.

**Ovipositor:** External structures as in Fig. 3. Cerci slightly longer than tergite 10. Hypoalves extending to about one-third length of cerci.

**Type material.**—Holotype: Male, Papua New Guinea, Northern Province, Myola (147°44'E, 9°9'S), Iora Creek, 4 June 1984, Chen W. Young. Paratype: One female, topotypic. Types are in the collection of the CMNH.

**Etymology.**—The name *insperata* (Latin, unexpected) was selected because of the unexpected capture of a mating pair along the bank of Iora Creek.

***Tipula (Papuatiptula) koiari* Young, new species**  
(Fig. 4-7)

**Description.**—Body length: Males, 17-18 mm; females, 19-20 mm. Wing length: Males, 20-21 mm; females, 9-10 mm.

**Head:** Occiput and rostrum pale brown, pollinose; palpi dark brown. Frontal tubercle with median longitudinal groove. Antenna with scape and pedicel yellow; flagellomeres faintly bicolored, brownish black basally, remainder brown; all flagellomeres except last subequal; five verticillate setae arising from base of each flagellomere, longest subequal in length to flagellomere.

**Thorax:** Pronotum grayish brown. Scutum with two dark brown longitudinal median stripes and two short indistinct lateral stripes. Pleura pale brown except laterotergites darker. Legs with coxae and trochanters yellowish brown slightly tinged with gray; remainder of legs brown, gradually darker



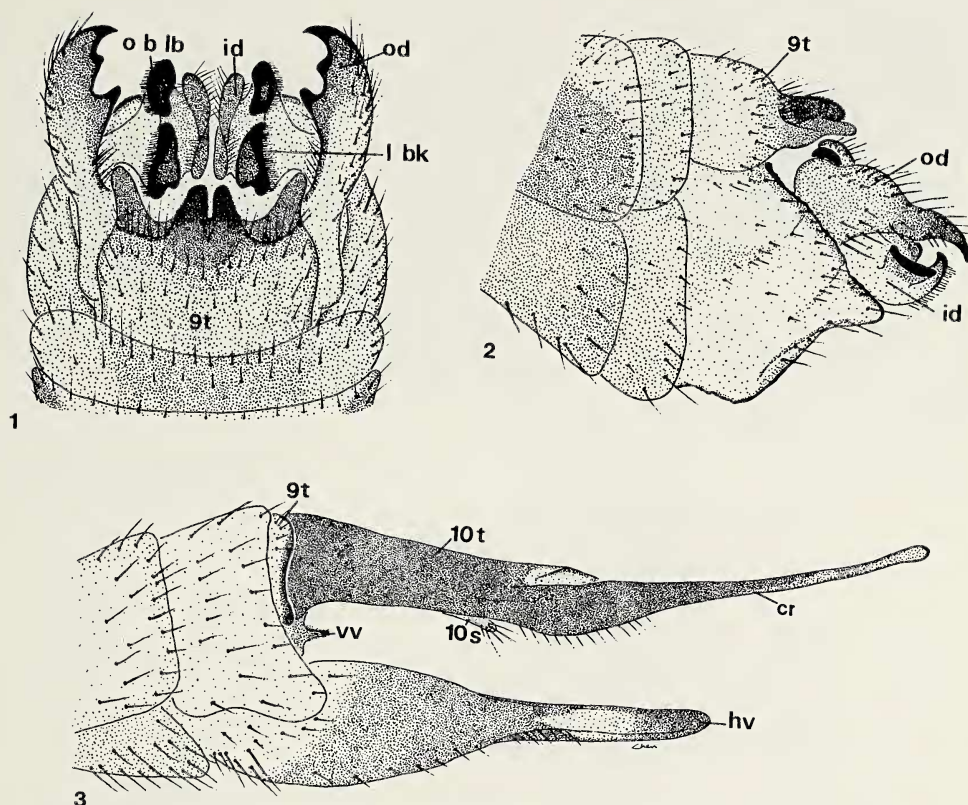


Fig. 1, 2.—*Tipula* (*Papuatiptula*) *insperata* male hypopygium. 1. Dorsal view. 2. Lateral view. 9t—ninth tergite, id—inner dististyle, l bk—lower beak of inner dististyle, o b lb—outer basal lobe of inner dististyle, od—outer dististyle. Fig. 3.—*T. (P.) insperata* female ovipositor lateral view. 9t—ninth tergite, 10s—tenth sternite, 10t—tenth tergite, cr—cercus, hv—hypovalve, vv—valvulae.

distally; apices of femora and tibiae dark. Wings tinged with grayish brown, darker along costal margin, on veins CuA, base of CuA<sub>1</sub>; dark brown clouding at stigma and middle of cell CuA. Clear areas in cell 1st M<sub>2</sub>, base of cells M<sub>1</sub> and M<sub>2</sub>, and apical one-third of cell R<sub>5</sub>. Female brachypterous, wings short and narrow with all veins visible. Knobs of halteres brownish black, stems yellowish brown.

**Abdomen:** Ground color brown, pollinose; first segment yellowish brown; tergites 2 to 7 brown with brownish black lateral margins forming a stripe interrupted by distinct subbasal impressions. Sternites 1 and 2 yellowish brown, other sternites gradually darker posteriorly. Female abdomen unusually large.

**Hypopygium:** External structures as Fig. 4, 5. Tergite 8 short, broadly emarginate; tergite 9 rounded at sides, with two median lobes distally, separated by shallow notch; apex of lobes with dense, black spines. Outer dististyle large, pale brown, curved inward with one large pre-apical tooth about mid-length; distal edge of outer dististyle heavily pigmented, serrate, with rounded apical tip. Inner dististyle with beak broad, directed anteriorly; lower beak lobed, dark; outer basal lobe small with dark outer margin.

**Ovipositor:** External structures as Fig. 6. Cerci slightly longer than tergite 10, narrowed at base, tapered posteriorly; sternite 10 pale, bearing setae at posterior margin. Hypovalves extending to about half length of cerci.

**Type material.**—Holotype: Male, Papua New Guinea, Northern Province, Myola, 2 June 1984, James A. Bossert, John W. Ismay, Chen W. Young. Paratypes: Thirty-two males, thirteen females, topotypic. The holotype and several paratypes

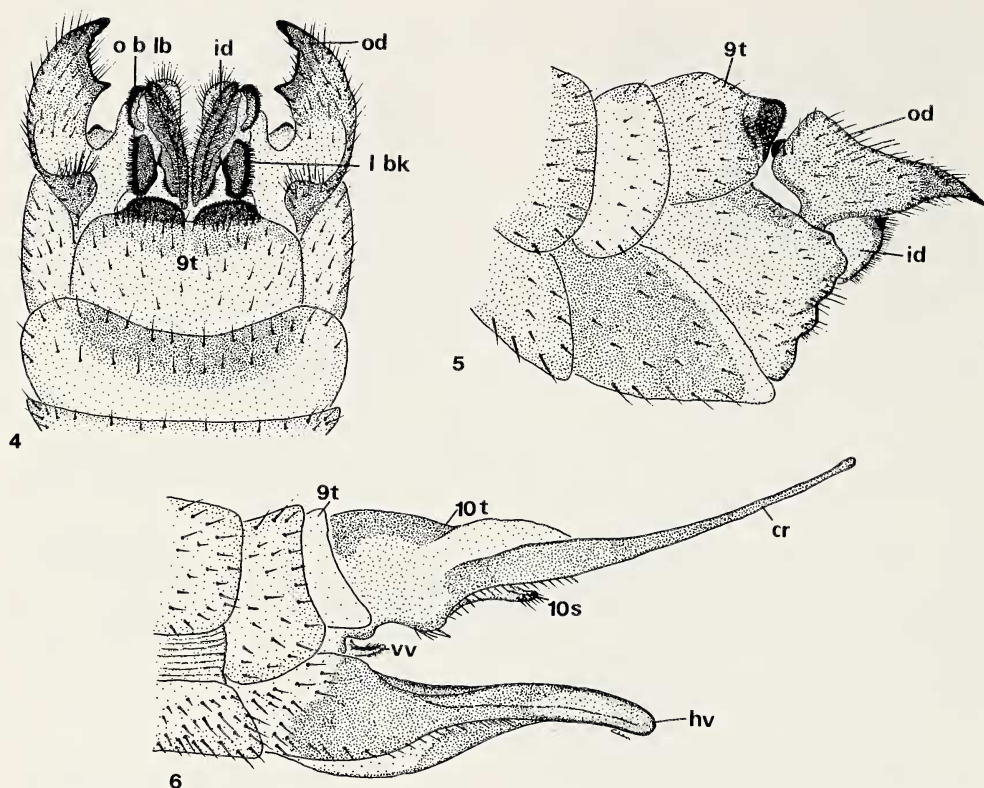


Fig. 4, 5.—*Tipula* (*Papuatipula*) *koiari* male hypopygium. 4. Dorsal view. 5. Lateral view. 9t—ninth tergite, id—inner dististyle, l bk—lower beak of inner dististyle, o b lb—outer basal lobe of inner dististyle, od—outer dististyle. Fig. 6.—*T. (P.) koiari* female ovipositor lateral view. 9t—ninth tergite, 10s—tenth sternite, 10t—tenth tergite, cr—cercus, hv—hypovalve, vv—valvulae.

are deposited in CMNH. One male paratype is deposited in each of the following institutions: Central Reference Insect Collection, Konedobu, Papua New Guinea; Bernice P. Bishop Museum, Honolulu, Hawaii; National Biological Institute, Bogor, Indonesia; Institute of Taxonomic Zoology, University of Amsterdam, Netherlands; Snow Entomological Museum, University of Kansas, Lawrence, Kansas; United States National Museum of Natural History, Washington, D.C.; British Museum (Natural History), London, England.

*Etymology.*—This species is named after the Koiari tribesmen on whose land the type series was collected.

*Remarks.*—The type series of this species was collected in a montane meadow. The habitat was a saturated marsh dominated by *Juncus*. This homogeneous habitat at high altitude (2200 m), coupled with low temperatures and frequent windy conditions, probably explains the occurrence of female brachyptery (Byers, 1969). Mating pairs were observed at night. Copulating females grasped blades and culms of grass with their front legs, while copulating males hung freely upside-down by their genitalia.

A gynandromorphic specimen (Fig. 7) was collected on 4 June 1984. This specimen has a well developed left wing, which is only slightly shorter than the





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Fig. 7.—*Tipula* (*Papatipula*) *koiari*. A gynandromorphic specimen showing brachypterous female form with a well developed left wing and a vaguely defined male hypopygium.

wing of a male. The right wing has the brachypterous female form. The abdomen terminates in an ovipositor. One cercus is present on the right side, and the left side is a vaguely defined male hypopygium. Both hypovalves are present on the ventral side. This specimen is in the collection of the CMNH.

***Tipula* (*Papatipula*) *nigritus* Young, new species**  
(Fig. 8–10)

**Description.**—Body length: Males, 16–17 mm; female, 23 mm. Wing length: Males, 18–19 mm; female, 21 mm.

**Head:** Occiput and rostrum dark brown; palpi dark brown. Frontal tubercle with median longitudinal groove. Antenna with scape and pedicel dark brown, flagellomeres beyond first vaguely bicolored, dark brown basally, remainder brown; flagellomeres subequal in length becoming shorter distally; five verticillate setae arising from base of each flagellomere, longest subequal in length to flagellomere.

**Thorax:** Pronotum dark brown. Scutum reddish brown with four longitudinal stripes bordered by dark brown, interspaces grayish brown; median stripes confluent anteriorly, and with pale median line posteriorly. Scutum, scutellum and mediotergite brown, pollinose. Pleura dark brown, pollinose. Legs dark brown, apices of femora and tibiae slightly darker. Wings patterned with pale brown and white;

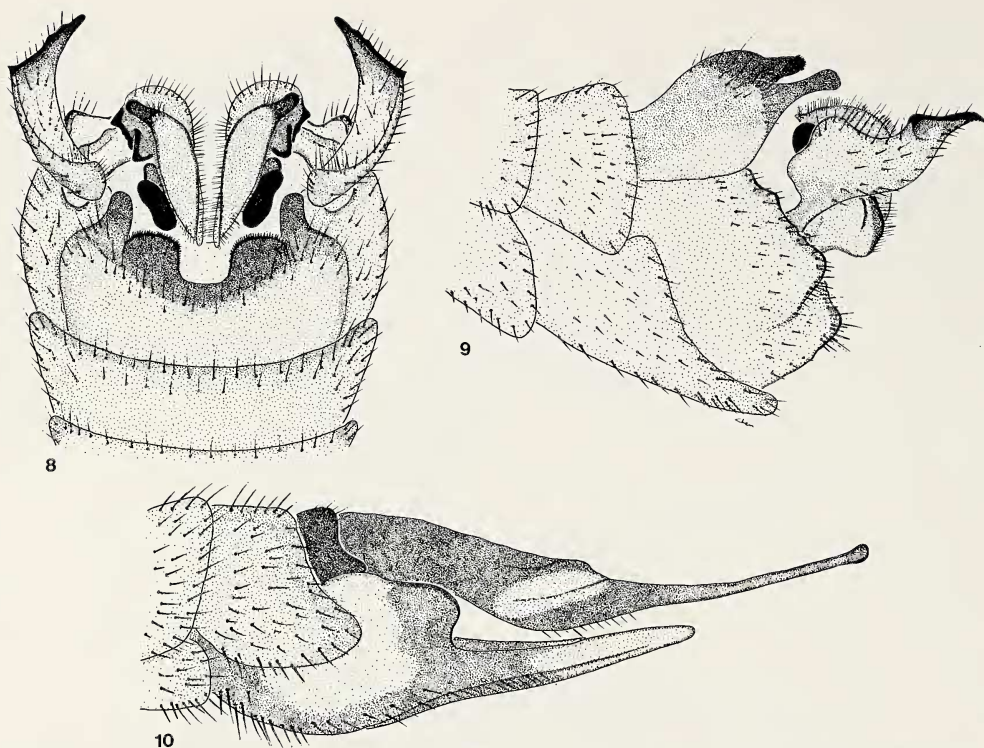


Fig. 8, 9.—*Tipula (Papuatiptula) nigrilus* male hypopygium. 8. Dorsal view. 9. Lateral view. Fig. 10.—*T. (P.) nigrilus* female ovipositor lateral view.

dark areas include stigma, prearcular region, base of cell  $R_{4+5}$ , base of cell  $CuA_1$ , and middle of cell  $CuA$ . Halteres dark brown.

**Abdomen:** Ground color brown with terga darker than sterna. Tergites 2 to 4 with pale basal rings and subbasal impressions.

**Hypopygium:** External structures as Fig. 8, 9. Tergite 8 short; tergite 9 terminating in two broadly rounded dark mesal lobes and two outer, lower lobes, mesal lobes widely separated by U-shaped notch, margins of mesal lobes with spines. Outer dististyle narrow at base, broad at middle; apex obliquely truncate with dark edge. Inner dististyle with beak broad, compressed; lower beak a small dark lobe; outer basal lobe bifurcate with dark margin.

**Ovipositor:** External structures as Fig. 10. Cerci slightly longer than tergite 10, with round apical expansion. Hypovalues extending to about one-third length of cerci, with basal lobe broad laterally.

**Type material.**—Holotype: Male, Papua New Guinea, Morobe Province, Wau Ecological Institute, 28 December 1965, J. & M. Sedlacek. Paratypes: Three males and one female, topotypic. Holotype, 1 male paratype, and 1 female paratype are in the collection of the Bernice P. Bishop Museum, Honolulu, Hawaii. Two male paratypes are deposited in the CMNH.

**Etymology.**—The name *nigrilus* emphasizes the relatively dark pigmentation of this species.

*Tipula (Papuatiptula) oneili* Young, new species  
(Fig. 11–13)

**Description.**—Body length: Males, 18–20 mm; females, 28–30 mm. Wing length: Males, 23–25 mm; females, 24–25 mm.

**Head:** Occiput and rostrum brown; palpi with first segment yellowish brown, remainder dark. Frontal



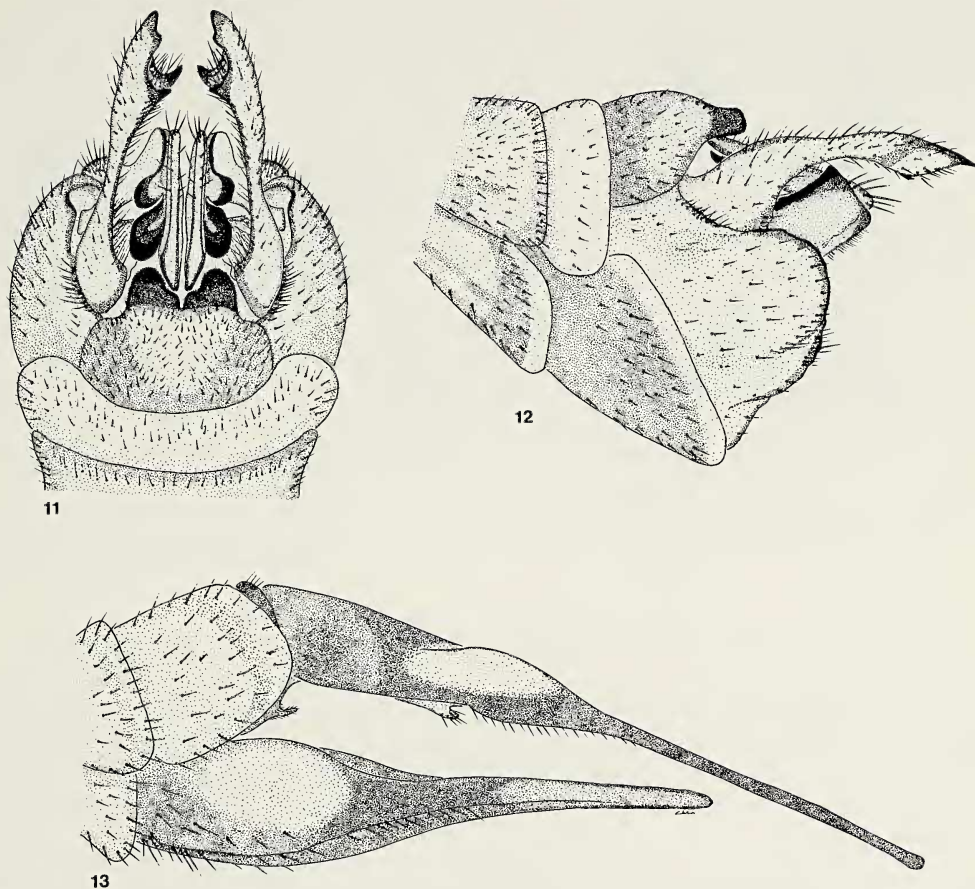


Fig. 11, 12.—*Tipula* (*Papatipula*) *oneili* male hypopygium. 11. Dorsal view. 12. Lateral view. Fig. 13.—*T. (P.) oneili* female ovipositor lateral view.

tubercle with median longitudinal groove. Antenna with scape and pedicel yellow, flagellomeres 2 to 8 bicolored, brown basally with remainder yellowish brown; all except apical flagellomeres subequal in length; five verticillate setae arising from base of each flagellomere, longest about twice length of flagellomere.

**Thorax:** Pronotum gray. Scutum brown with four slightly darker brownish gray stripes bordered narrowly with brown. Scutum, scutellum, mediotergite, and pleura evenly gray, pollinose. Legs with coxae and trochanters gray; femora and tibiae yellow, apices dark brown; tarsi light brown, gradually darker toward apices. Wings grayish subhyaline, with darker area at stigma and faint pattern of brown before middle of cell CuA toward base. Halteres grayish brown.

**Abdomen:** First segment gray; tergites 2 to 4 yellowish brown; tergites 5 to 8 dark brown. Sternites dark brown.

**Hypopygium:** External structures as in Fig. 11, 12. Tergite 8 short; tergite 9 with two low, slightly obtuse lobes separated by a narrow notch posteriorly, lobes emarginate medially, edged with spines. Outer dististyle long, broad at base, narrowed near mid-length, expanded apically; apex bifurcate with a dark flange extending mesad. Inner dististyle with beak slender; lower beak a dark lobe; outer basal lobe smaller than lower beak with dark margin.

**Ovipositor:** External structures as Fig. 13. Cerci long, about twice length of tergite 10. Hypovalves broad basally, tapered posteriorly, extending to about half length of cerci.

**Type material.**—Holotype: Male, Papua New Guinea, Morobe Province, Wau Ecological Institute, 13 May 1984, Chen W. Young. Paratypes: Two males and

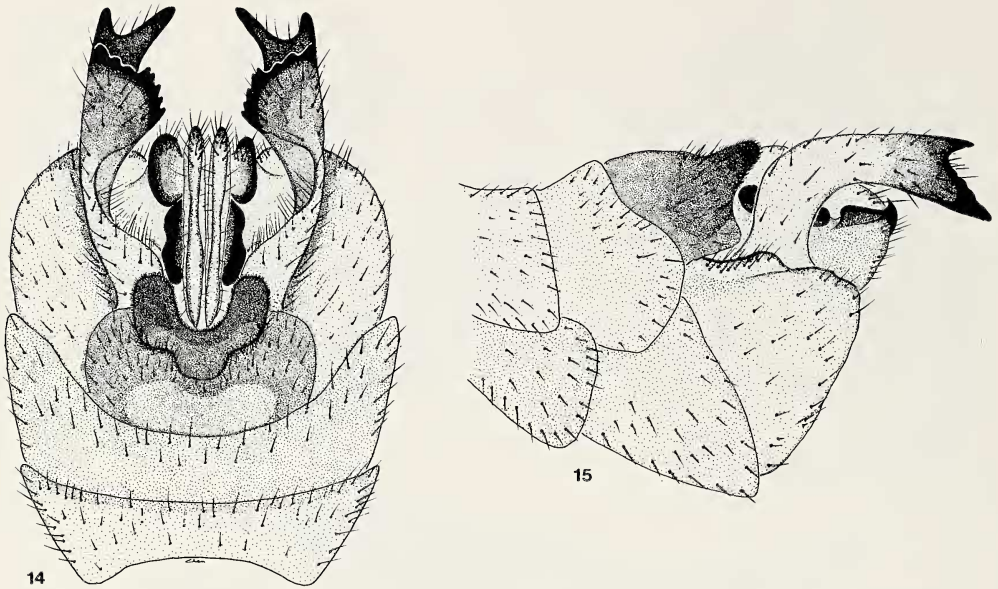


Fig. 14, 15. *Tipula (Papuatipula) wibleae* male hypopygium. 14. Dorsal view. 15. Lateral view.

two females topotypic; two males, two females, Northern Province, near Tufi, 10 September 1982, John W. Ismay. Holotype and four paratypes are in the collection of the CMNH. Other paratypes are deposited in Central Reference Insect Collection, Konedobu, Papua New Guinea, and the Bernice P. Bishop Museum, Honolulu, Hawaii.

**Etymology.**—This species is named in honor of Mr. Edward O'Neil for his generosity in funding the field activities of the Section of Invertebrate Zoology, CMNH.

**Remarks.**—Specimens of this species were collected from low herbaceous plants growing along the forest edge.

***Tipula (Papuatipula) wibleae* Young, new species**  
(Fig. 14, 15)

**Description.**—Body length: Males 25–27 mm; female, unknown. Wing length: Males, 32–35 mm.

**Head:** Occiput and rostrum yellowish brown; palpi dark brown. Frontal tubercle distinct, with median longitudinal groove. Antenna with scape and pedicel yellow; flagellomeres bicolored, brownish black basally, the remainder yellow; all flagellomeres subequal in length; five verticillate setae arising from base of each flagellomere, longest about twice length of flagellomere.

**Thorax:** Pronotum yellow. Scutum yellowish brown with two reddish brown longitudinal stripes bordered by yellow; stripes contiguous anteriorly, narrowly bordered with yellow. Scutum yellowish brown; scutellum brown. Mediotergite quadrate, gray pollinose anteriorly, yellow posteriorly. Pleura evenly yellow, pollinose. Legs with coxae and trochanters yellow, pollinose; remainder of legs brown gradually darker towards apex; apices of femora and tibiae dark. Wings tinged with brown, distinctly patterned with dark brown and white; band before cord conspicuous, white, extending to base of cell  $M_1$ ; dark pigment narrowly present along veins  $CuA_2$ ,  $M_{1+2}$ ,  $m$ ,  $r-m$ , basal half of  $CuA_1$ ,  $M_1$ ,  $M_2$ ,  $M_3$ , basal half and distal fourth of  $CuA$ ; pattern in stigmal region of wing restricted, dark brown; dark quadrate area before middle of cell  $CuA$  toward base. Knobs of halteres yellow, stems light brown.

**Abdomen:** Segment 1 brownish yellow; tergites 2 to 5 with basal one-third brownish yellow and remainder brown with paler lateral border; basal rings pale; subbasal impressions inconspicuous; tergite 6 brown; tergites 7 and 8 pale brown. Sternite yellowish brown.



**Hypopygium:** External structures as in Fig. 14, 15. Tergite 8 shorter than tergite 9, broadly emarginate posteriorly; tergite 9 with posterior border produced into two rounded lobes distally separated by a deep U-shaped notch; mesal margins of lobes with abundant short dense spines. Outer dististyle dark brown, nearly parallel-sided in lateral aspect but slightly wider at base, with apex pigmented and bifurcate; outer margin serrate with a dark ridge extending along inner ventral surface toward base. Inner dististyle with beak long and slender; lower beak a dark lobe; outer basal lobe of inner dististyle short, terminating in a dark, rounded lobe.

**Type material.**—Holotype: Male, Papua New Guinea, Northern Province, Myola, Iora Creek, 3 June 1984, Chen W. Young. Paratypes: Two males, topotypic. The holotype and paratype are in the collection of the CMNH. The other paratype is deposited in the Central Reference Insect Collection, Konedobu, Papua New Guinea.

**Etymology.**—This species is named in honor of Mrs. Mary Wible, a long dedicated friend of The Carnegie Museum of Natural History. She has collected specimens for the Section of Invertebrate Zoology over many years, and has provided generous financial support for a wide variety of research projects, including this study.

**Remarks.**—All specimens were collected during the day, resting on the undersides of tree trunks projecting over Iora Creek. The tree trunks were heavily covered with living moss.

#### ACKNOWLEDGMENTS

I would like to thank John Ismay for his help during my collecting trip in Papua New Guinea, Adam Bossert for helping in collecting specimens, Harry Sakulas for making available the facilities at Wau Ecology Institute, and John Rawlins for comments and suggestions on the manuscript. Acknowledgments are due Wayne Mathis (United States National Museum of Natural History), Bruce Townsend (British Museum (Natural History)), Neil Evenhuis (Bernice P. Bishop Museum), Chris Watts (South Australia Museum), and Margaret Debenham (University of Sydney) for their generous loan of type materials. This research was conducted with permission from the Division of Research, Department of Morobe, Papua New Guinea, and was supported by the O'Neil Field Research Fund and the Wible Research Fund, Section of Invertebrate Zoology, The Carnegie Museum of Natural History.

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